



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

JUN 25 2001

Ms. Sharon M. Matthews  
O'Melveny & Myers LLP  
400 South Hope Street  
Los Angeles, CA 90071

Reference No.: 00-0331

Dear Ms. Matthews:

This is in response to your inquiry concerning the requirements for shipment of automobiles with a flammable liquid or a compressed natural gas fuel tank by aircraft under § 173.220 of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) and Packing Instruction 900 of the International Civil Aviation Organization's (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods By Air. Specifically, your question concerns the amount of fuel that is permitted to remain in the vehicle fuel tank under the HMR. You also state that the motor vehicle will be in international air commerce.

Section 171.11 authorizes the use of the ICAO Technical Instructions as an alternative to the requirements prescribed in the HMR for air shipments, with certain exceptions. Therefore, the amount of fuel remaining in a flammable liquid-powered vehicle may not exceed one-quarter of the fuel tank capacity as prescribed in the ICAO Technical Instructions. As you noted, under both the HMR and the ICAO Technical Instructions, the fuel tank on a flammable gas-powered vehicle [i.e., "Vehicle (flammable gas powered), UN3166, 9"] must be emptied before loading the vehicle aboard an aircraft. A request for deviation from this provision should be submitted to Mr. James E. Jones, Chief Approvals (DHM-32), Office of Hazardous Materials Exemptions and Approvals. This request should provide detailed information on the vehicles, fuel system, proposed safety measures, etc.

I hope this information is helpful.

Sincerely,

Hattie L. Mitchell  
Chief, Regulatory Review and Reinvention  
Office of Hazardous Materials Standards



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173.220

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## FAX TRANSMITTAL

## DATE &amp; TIME:

Thursday, 11/30/00, 9:07 AM

## TOTAL NUMBER OF PAGES:

2

## TO:

Edward Mazzullo - Director of the  
Office of the Hazardous Materials  
Standards

## FAX NUMBER:

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## FROM:

Sharon M. Matthews

## RETURN FAX NUMBER:

213-430-6407

## TELEPHONE NUMBER:

213-430-6085

## MESSAGE

Mr. Mazzullo,

Attached are a few questions about 49 CFR 173.220 as compared to ICAO Packing Instruction 900. If you have any questions about my questions please contact me at 213-430-6085. Thank you for your assistance on this matter.

Best Regards,

Sharon Matthews

IF YOU DID NOT RECEIVE ALL PAGES, PLEASE CALL Sharon Matthews AT 213-430-6085, OR OUR  
FAX DEPARTMENT AT 213/430-6357.

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Issue - If a car manufacturer shipping motor vehicles internationally by aircraft decides not to follow the alternative shipping requirements listed in 49 CFR 175.305 and rather intends to comply with the general shipping guidelines listed in 49 CFR 173.220(b) will the manufacturer be allowed to leave enough fuel in the tank to drive the vehicles on and off the plane?

The manufacturer would be shipping cars, some fueled by liquid fuel and others fueled by compressed natural gas.

#### Liquid Fuel

49 CFR 173.220(b)(1) states that when shipping motor vehicles powered by liquid fuel up to 17 oz of fuel may be left in the tank. It is generally not possible to measure precisely the 17 oz of fuel which may be left in the tank. Moreover, in most cases, 17 oz of fuel would not be sufficient to drive the vehicle onto and off of the plane. In contrast, ICAO Packing Instruction 900(a) states that when shipping vehicles the engines must be drained of fuel "as far as practicable" and if any fuel remains it must not be more than  $\frac{1}{4}$  of a tank. It is not clear how the two regulations are to be reconciled since there is a great difference between a quarter tank of gas and 17 oz of fuel. One quarter of a tank of fuel is more than sufficient to drive the vehicles onto and off of an airplane so if the manufacturer shipped their vehicles with a small amount of fuel necessary to disembark, well within requirements of the ICAO regulations, would that satisfy the DOT? Additionally, we are interested in the International Civil Aviation Organization's interpretation of "as far as practicable" as stated in ICAO Packing Instruction 900(a). Does "as far as practicable" take into account the need to retain a small amount of fuel in the tank to drive the vehicles off the aircraft at the delivery point? Lastly, if in your opinion the DOT requirements do not permit the retention of a small amount of fuel in the tank to drive the vehicle off the aircraft at the point of delivery, well within the  $\frac{1}{4}$  tank allowed by the ICAO Technical Instructions, is there a procedure that a motor vehicle manufacturer could follow to apply for a waiver of the stringent DOT regulation permitting only 17 oz of fuel in the tank during international shipment by cargo carrier to or from the United States?

#### Compressed Natural Gas Fuel

49 CFR 173.220(b)(2) states that for transportation by air of a vehicle fueled by compressed natural gas the fuel tank and fuel system must be emptied. The regulation is silent as to whether leaving a de minimus amount of fuel in the tank is permitted to allow the motor vehicle to be driven on and off of the aircraft. ICAO Packing Instruction 900(b) also requires that the vehicles must be completely emptied of the compressed natural gas. Since compressed natural gas is less hazardous than gasoline, do these regulations preclude leaving a small amount of fuel in the tank to allow the motor vehicles to be driven on and off of the aircraft. If not, could a vehicle manufacturer obtain an exemption from the DOT Title 49 requirement and the ICAO Instructions requirement to enable them to leave enough compressed natural gas in the vehicles to drive them onto and off of the aircraft? Additionally, even if a small amount of compressed natural gas were to remain in the tank, the other requirements of the DOT regulations and the ICAO Technical Instructions would be met.